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MTBE and Benzene Plumes, Spatial and Temporal Analysis. Edwin Beckenbach, University of California Berkeley, Anne Happel, Lawrence Livermore National Laboratory, Rick Rempel, State Water Resources Control Board, Heidi Temko, SWRCB, Dave Rice, LLNL.

A new conservative model for estimation of plume length is proposed and used to estimate the extent of benzene and MTBE migration at LUFT sites throughout California. Benzene plume lengths are investigated for 271 sites statewide and compared with estimates determined using hand drawn plumes and best professional judgment, and results from *California Leaking Underground Fuel Tank (LUFT) Historical Case Analysis* (Rice *et al.*, 1995). Conservative estimates and temporal trends are presented. Traditionally, BETX, particularly benzene, have been the contaminants of concern with regard to LUFTs. Presently, the emergent problem of MTBE contamination must be considered. We are using data from a large number of leaking underground fuel tank (LUFT) sites to define the spatial extent of dissolved MTBE plumes, evaluate increases, stabilization or degradation of MTBE plumes over time, evaluate the impact of point source releases of MTBE to ground water, and attempt to identify the controlling factors influencing the magnitude and extent of MTBE plumes. Initial results comparing populations of dissolved benzene and MTBE plumes lengths, the statistical significance of these results, and comparison of benzene and MTBE plume length at individual LUFT sites are presented. The results of this study show that there is extensive variation between dissolved MTBE and benzene plumes at existent LUFT sites.

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